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EXAMINER

SHINGLETON, MICHAEL B

ART UNIT

PAPER NUMBER

2817

DATE MAILED: 01/14/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09-888,823

Applicant(s)

Page

Examiner

SHINGLETON

Group Art Unit

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— The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address —

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE Three MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- ☒ Responsive to communication(s) filed on 10-29-2002
- ☐ This action is **FINAL**.
- ☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- ☒ Claim(s) 1-20 are pending in the application.
- Of the above claim(s) 3, 4, 8-14 is/are withdrawn from consideration.
- ☐ Claim(s) is/are allowed.
- ☒ Claim(s) 1, 2, 5-7, 15, 17-20 are rejected.
- ☒ Claim(s) 16 is/are objected to.
- ☐ Claim(s) are subject to restriction or election requirement

Application Papers

- ☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.
- ☐ The drawing(s) filed on _____ is/are objected to by the Examiner
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

- ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119 (a)-(d).
- ☐ All ☐ Some* ☐ None of the:
- ☐ Certified copies of the priority documents have been received.
- ☐ Certified copies of the priority documents have been received in Application No. _____.
- ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a))

*Certified copies not received: _____

Attachment(s)

- ☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____
- ☐ Interview Summary, PTO-413
- ☐ Notice of Reference(s) Cited, PTO-892
- ☐ Notice of Informal Patent Application, PTO-152
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☐ Other _____

Office Action Summary

DETAILED ACTION

Applicant's election with traverse of election of species requirement in Paper No. 3 is acknowledged. The traversal is on the ground(s) that applicant believes the species do not present a serious burden. This is not found persuasive because of the following:

The examiner respectfully disagrees with applicant as it concerns claim 8 being directed to the elected invention. The element recited in claim 8 is a low pass filter that filters the bias signal prior to providing it to the RF power amplifier. This corresponds to element 140 that is part of the non-elected invention Figure 1 and is not part of the elected invention Figure 2. The only time element 140 concerning the elected invention appears on page 4 of the specification. Here the value M is determined with respect to the time constant of 140 and this value is chosen to ensure that the low pass filter may charge and discharge significantly during the time period that the gate bias switching signal 225 is low, but nowhere is it described how this element is connected if connected at all in the embodiment illustrated in Figure 2.

Applicant believes that there would be no serious burden in examining both species. The examiner respectfully disagrees. Applicant is correct in the belief that both species has a generic element that discusses the turning off of power to conserve power. This is conventional in the art. The significant burden is examining the specific circuitry to bring this about. It is noted that applicant has not made the traversal on the grounds that the species are not patentably distinct.

The requirement is still deemed proper and is therefore made FINAL.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Kusunoki 5,471,656 (Kusunoki).

Figure 1 of Kusunoki discloses a method of controlling an RF power amplifier 4 wherein during the low points in the input signal, the bias, i.e. power supply is removed that reduces power consumption.

Element 1 of Kusunoki clearly must measure the magnitude of the input signal for as noted above and recited in columns 1 and 2 of Kusunoki the times when there is no input signal is the times when the bias is cutoff. Also note that Figure 1 of Kusunoki is connected to the input and thereby uses the input part as part of its control. Figure 2 of Kusunoki discloses a method of controlling an RF power amplifier 11 that clearly meets claim 1. Note that the detector 12 and the main controller 14 measures the input signal and the bias is controlled in the manner set forth in claim 1 (See columns 4 and 5 and in particular note the paragraph bridging columns 4 and 5.)

Claim 20 is rejected under 35 U.S.C. 102(b) as being clearly anticipated by Faulkner et al. 5,420,536 (Faulkner).

Figure 7 of Faulkner discloses a RF power amplifier method that includes a digital signal I, Q, a buffer 66b, and a buffer 66a for the digital representation of power. Also element 60 can be considered as a buffer for the digital representation of power. The digital representation of power is preformed by element 56. Figure 7 of Faulkner also shows a converter, i.e. modulator that converts the base band to RF (See column 7, lines 38-41). Column 9, lines 30-48 describes the operation of the mapping element 58 that in turn controls the bias to the amplifier as a function of the power of the digital signal.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kusunoki 5,471,656 (Kusunoki) in view of Pan et al. 5,920,596 (Pan).

Figure 1 of Kusunoki discloses a method of controlling an RF power amplifier 4 wherein during the low points in the input signal, the bias, i.e. power supply is removed that reduces power consumption. Element 1 of Kusunoki clearly must measure the magnitude of the input signal for as noted above and recited in columns 1 and 2 of Kusunoki the times when there is no input signal is the times when the bias is cutoff. Also note that Figure 1 of Kusunoki is connected to the input and thereby uses the input part as part of its control. Figure 2 of Kusunoki discloses a method of controlling an RF power amplifier 11 that clearly meets claim 1. Note that the detector 12 and the main controller 14 measures the input signal and

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the bias is controlled in the manner set forth in claim 1 (See columns 4 and 5 and in particular note the paragraph bridging columns 4 and 5.)

Kusunoki is silent on whether or not the high frequency signal is a digital one and is silent on the use of a buffer connected to the signal. Kusunoki is also silent on the aspect of having the bias signal changed prior to the input signal being provided to the amplifier. .

As to the time delay of the input signal such this is seen as being merely the selection of the optimum or workable range for the system. It would be inefficient to turn on the power supply when no signal is present and the device would not amplify if no power is applied to the amplifier. Since this selection of optimum or workable range involves but routine skill in the art, selection of these delays would have been obvious to one of ordinary skill in the art.

Figure 2 of Pan discloses a digital signal applied to a time delay element which can be considered to be a buffer since the term buffer is a broad term. Furthermore, the digital signal is applied to an up converter 16 in the same manner as applicant's invention (See the first full paragraph of column 3 of Pan.). Pan teaches that by using such an arrangement a digital signal can be amplified which as is known to those of routine skill in the art that a digital signal has a much better signal to noise ratio.

This it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize a digital signal in Kusunoki and buffer the signal and then apply such a base band signal to the up-converter so as to improve the signal to noise ratio as taught by Pan and as is well known to those of routine skill in the art.

Claims 15, 17 and 18 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Faulkner et al. 5,420,536 (Faulkner).

Figure 7 of Faulkner discloses a RF power amplifier system that includes a digital signal I, Q, a buffer 66b, and a buffer 66a for the digital representation of power. Also element 60 can be considered as a buffer for the digital representation of power. The digital representation of power is preformed by element 56. Figure 7 of Faulkner also shows a converter i.e. modulator that converts the base band to RF (See column 7, lines 38-41). Column 9, lines 30-48 describes the operation of the mapping element 58 that in turn controls the bias to the amplifier as a function of the power of the digital signal. [It is clear that in order for the proper function to be applied the output of 56 must be compared.] Thus, Faulkner is seen as anticipating this claimed feature. However, alternatively, it is common knowledge to compare a measured value to a set value or a plurality of set values so that the proper predetermined function in the mapping i.e. table can be used. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a comparison to choose the proper function contained in the mapped

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element to be used as is commonly done in the art. Claim 18 is very broad in that a predetermined threshold could be anything and since the bias is on in Faulkner there is a range of power levels that is greater than a threshold where the bias is "on".

Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Faulkner et al. 5,420,536 (Faulkner) in view of Kusunoki 5,471,656 (Kusunoki).

The same reasoning as applied to claims 15, 17 and 18 as it involves the rejection of these claims under Faulkner above and the following: Faulkner fails to describe the turning off of the bias when a certain power level is sensed. This is a well known mapped function as is shown in Figure 1 of Kusunoki and the motivation for doing so as taught by Kusunoki is to conserve power. Basically when the signal is "off" there is no need to apply power to the amplifier and thus power can be saved.

Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to sense this level of "no" signal in Faulkner and accordingly choose the map function that turns off the bias, i.e. power, to the amplifier so as to save power as taught by Kusunoki.

Allowable Subject Matter

Claim 16 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The prior art of record fails to disclose the use of a FiFO buffer.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Honda JP54-104760 and Kelly et al. disclose general state of the art amplifier circuits.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael B. Shingleton whose telephone number is 703-308-4903. The examiner can normally be reached on Monday-Thursday from 8:00 to 4:30. The examiner can also be reached on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Pascal, can be reached on (703) 308-4909. The fax phone number for the organization where this application or proceeding is assigned is 703-308-7722.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

MBS
January 6, 2003

Michael B. Shingleton
MICHAEL B SHINGLETON
PRIMARY EXAMINER
GROUP 1 PART 1 INT 2817